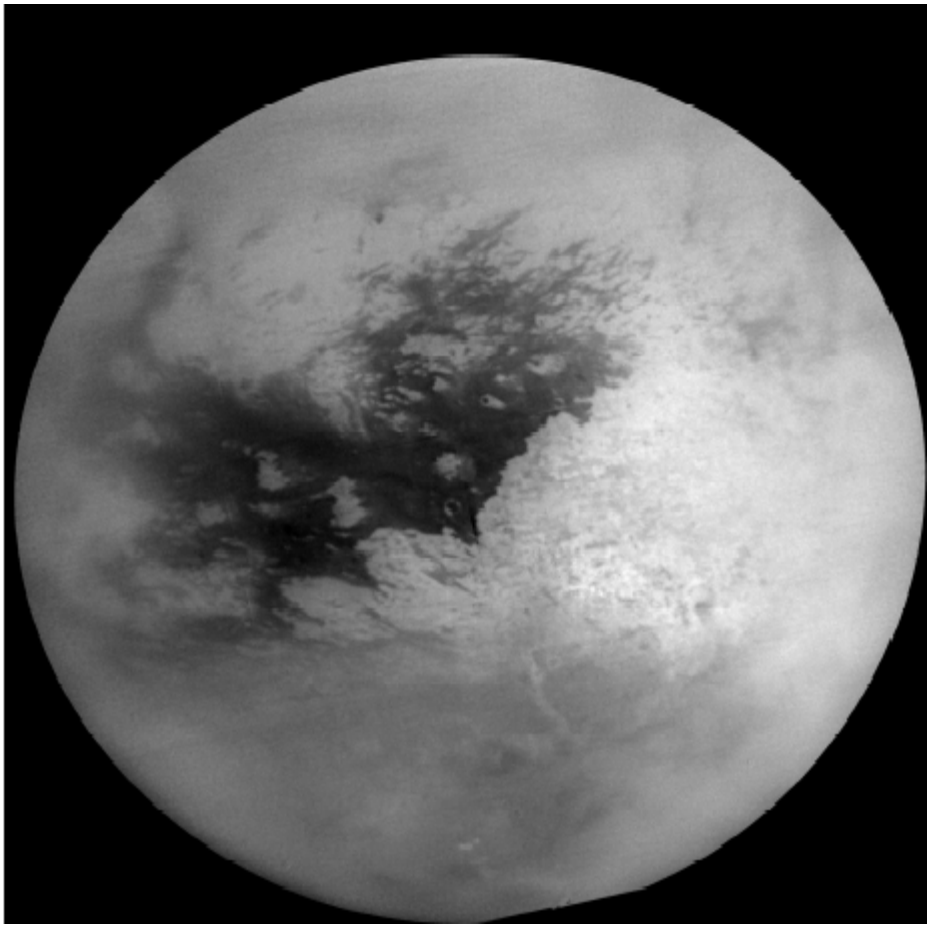
C A S S I N I



T I T A N **0 1 3 T I (T 6)** MISSION DESCRIPTION

August 2005

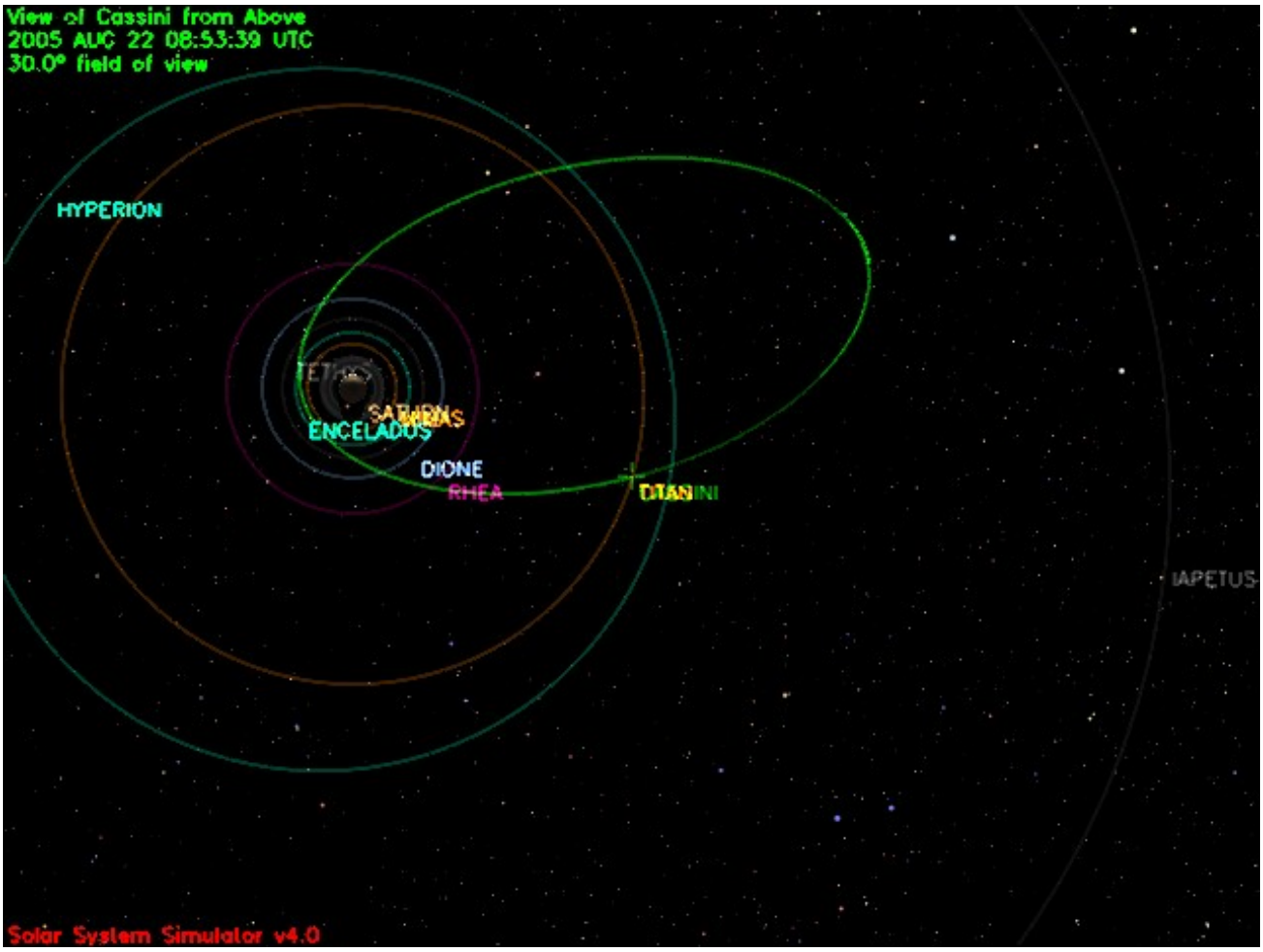
Jet Propulsion Laboratory
California Institute of Technology

PD 699-100, Rev O (supplement)
JPL D-5564, Rev O (supplement)

1.1 OVERVIEW

Titan-6 is the seventh targeted encounter of Saturn's largest moon. The flyby occurs on Monday 22 August at 08:54 SCET (03:17 AM Pacific Standard Time). The closest approach will be at an altitude of 3669 km (2280 miles) above the surface at a speed of 5.9 km/sec (13,200 mph). The latitude at closest approach is -59°.

The encounter is set up with two approach maneuvers: an apoapsis maneuver (OTM#27) on 10 August and another Titan targeting maneuver (OTM #28) on 18 August, four days before the encounter. This Titan flyby encounter will be an outbound flyby, with Saturn periapsis occurring almost two days earlier. The observations will be done using reaction wheels for attitude control. The flyby geometry is shown below.



1.2 ABOUT TITAN

Titan is one of the primary scientific interests of the Cassini-Huygens mission. Through observations by Earth based telescopes and the Voyager spacecraft, Titan has been revealed to be an intriguing world both similar in nature to Earth and unique among both satellites and terrestrial planets. The largest of Saturn's satellites, Titan is larger than the planets Mercury or Pluto. Titan is the only satellite in the solar system with an appreciable atmosphere. Like Earth's atmosphere, Titan's atmosphere is composed mostly of Nitrogen, yet appears to have few clouds. However, it also contains significant quantities of aerosols and organic compounds (hydrocarbons), including methane and ethane. Although Titan's thick smoggy atmosphere masks its surface, scientists have speculated Titan's surface could contain solid, liquid and muddy material creating features such as lakes, seas, or rivers. Additionally liquid reservoirs may exist beneath the surface forming geysers or volcanoes that feed flowing liquid onto the surface.

Titan's peak surface temperature is about 95 Kelvin, too cold for liquid water, and due to its thick atmosphere, the pressure at the surface is 1.6 times greater than Earth's atmosphere. At this temperature and pressure, chemicals such as methane, ethane, propane, ammonia, water-ice and acetylene may be involved in complex interior-surface-atmosphere chemical cycles resulting in eruptions, condensation and precipitation (or rain). Initial observations obtained by Cassini during the first several passes of Titan provided our first close up views of Titan in wavelengths ranging from visible light to infrared to radar. The Huygens probe successfully returned atmospheric data and images of the surface, providing ground truth for the Cassini Orbiter measurements. The results show a mysterious world even more complex than previously thought. The diversity of surface composition and its connection to Titan's geologic features remains a fundamental question. Huygens' results indicate that methane exits as a liquid just below the surface and may rain from the atmosphere periodically. Clouds in Titan's atmosphere were observed in the southern hemisphere, yet no clear explanation has emerged on what the clouds are composed of, or why more clouds do not exist. Observations of Titan's interaction with Saturn's magnetosphere indicate the presence of complex processes complicated by Titan's occasional emergence out of Saturn's magnetosphere into the solar wind.

1.3 TITAN-6 SCIENCE ACTIVITIES

The Cassini/Huygens project is interested in four broad science themes concerning Titan: its interior structure, surface characteristics, atmospheric properties, and interaction with Saturn's magnetosphere. The Composite Infrared Spectrometer (CIRS) team will control the spacecraft pointing throughout the entire Titan-6 encounter.

CIRS will perform three-dimensional temperature mapping of Titan's atmosphere in longitude, latitude, and altitude. They will also study latitude and altitude variations of the composition, as well as vertical aerosol distribution and surface temperatures.

ISS will observe surface features as well as atmospheric and limb-haze properties.

VIMS will perform medium-resolution mapping, study the haze and mid-latitude clouds and search for changes.

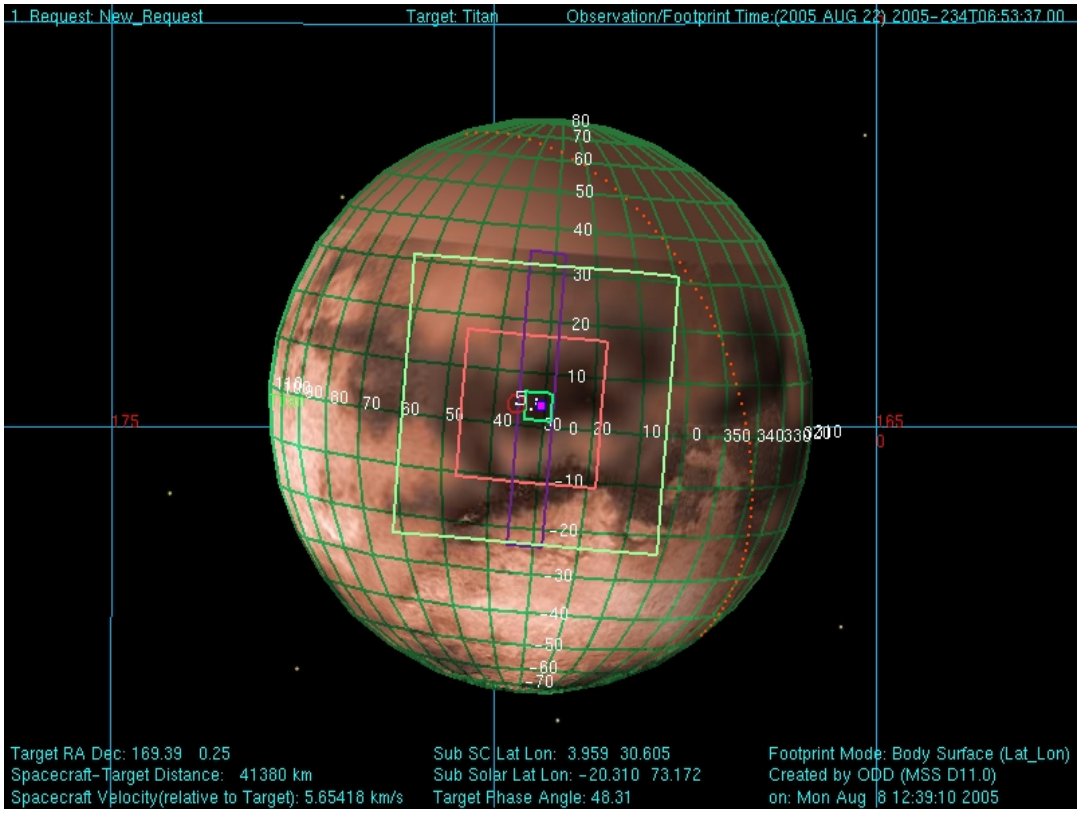
Several of the MAPS teams will continue to gather information on Titan's interaction with Saturn's magnetosphere. In particular, the Titan-6 encounter will allow the study of the wake/tail region on the dayside of Titan.

1.4 SAMPLE SNAPSHOTS

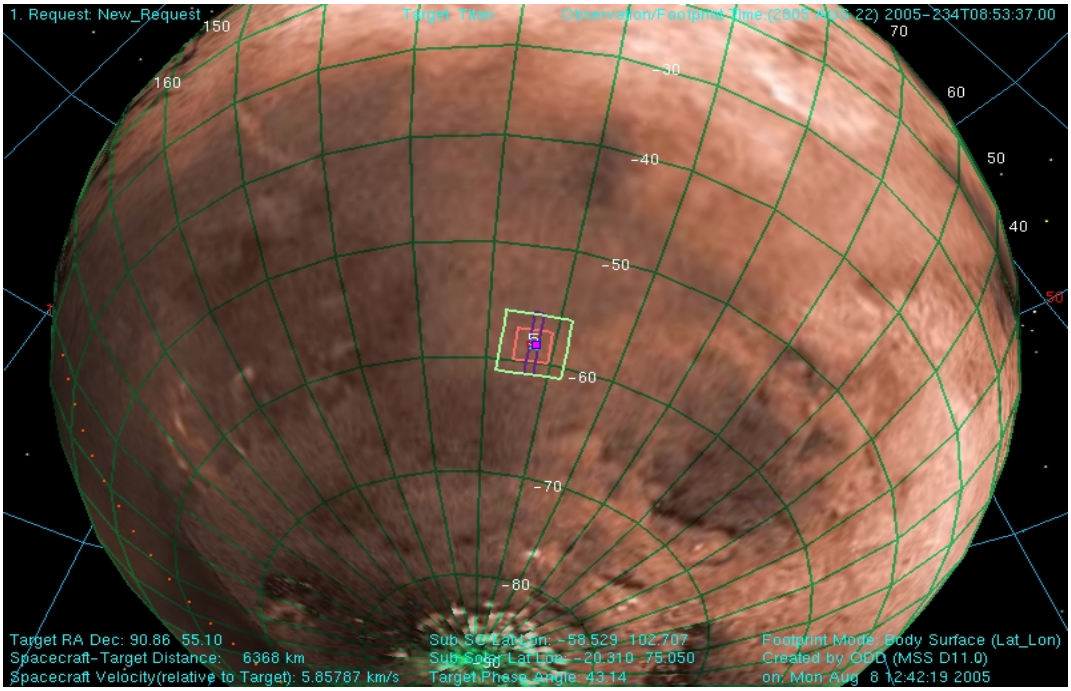
Three views of Titan from Cassini before, during, and after closest approach to Titan are shown below. The views are oriented such that the direction towards the top of the page is aligned with the Titan North Pole. Sample remote sensing instrument fields of view are drawn assuming that Cassini is pointed towards the center of Titan. The size of these fields of view vary as a function of the distance between Cassini and Titan. A key for use in identifying these instruments fields of view in the figures is listed below.

Key to Instrument Fields of View in Figures

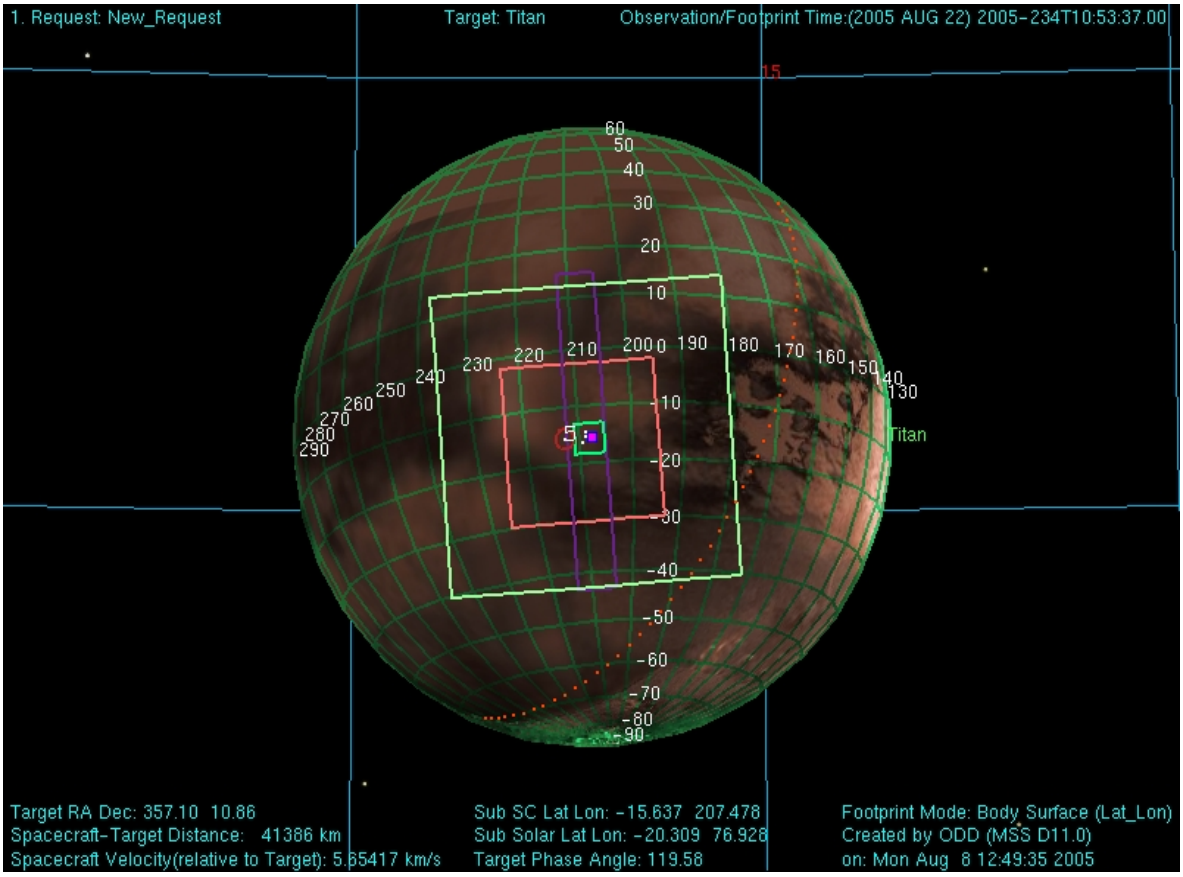
Instrument Field of View	Depiction in Figure
ISS WAC (imaging wide angle camera)	Largest square
VIMS (visual and infrared mapping spectrometer)	Next smallest pink square
ISS NAC (imaging narrow angle camera)	Smallest green square
CIRS (composite infrared spectrometer) – Focal Plane 1	Small red circle near ISS_NAC FOV
UVIS (ultraviolet imaging spectrometer)	Vertical purple rectangle centered within largest square



View of Titan from Cassini 2 hours Before Closest Approach



View of Titan from Cassini at Closest Approach



View of Titan from Cassini 2 hours After Closest Approach

Colors: yellow = maneuvers; blue = geometry; pink = T6-related; green = data playbacks

Cassini Titan-6 Timeline - August 2005

Orbiter UTC	Ground UTC	Pacific Time	Time wrt T6	Activity	Description
212T22:00:00	Jul 31 23:23	Sun Jul 31 04:23 PM	T6-21d11h	Start of Sequence s13	Start of Sequence which contains Titan-6
230T05:00:00	Aug 18 06:23	Wed Aug 17 11:23 PM	T6-04d04h	OTM #28 Prime	Titan-6 minus 3 day targeting maneuver
231T05:00:00	Aug 19 0623	Thu Aug 18 11:23 PM	T6-03d04h	OTM #28 Backup	
233T21:20:00	Aug 21 22:43	Sun Aug 21 03:43 PM	T6-11h33m	Start of the TOST Segment	
233T21:20:00	Aug 21 22:43	Sun Aug 21 03:43 PM	T6-11h33m	Turn cameras to Titan	
233T21:20:00	Aug 21 23:13	Sun Aug 21 04:13 PM	T6-11h03m	Deadtime	used to accommodate changes in flyby time
233T22:05:00	Aug 21 23:28	Sun Aug 21 04:28 PM	T6-10h48m	Far infrared stare at stratosphere/limb	Obtain information on CO_2, HCN CH_4
234T01:23:00	Aug 22 02:46	Sun Aug 21 07:46 PM	T6-07h30m	Map the limb in the mid IR; limb photometry	Obtain vertical profiles of temperature
234T07:16:00	Aug 22 08:39	Mon Aug 22 01:39 AM	T6-01h37m	**Ring Plane Crossing**	
234T08:43:00	Aug 22 10:06	Mon Aug 22 03:06 AM	T6-00h10m	Scans of south polar region	Study the thermal and compositional structure of titan's atmosphere. Infrared observations regarding cloud formation and evolution.
234T08:53:37	Aug 22 10:13	Mon Aug 22 03:16 AM	T6+00h00m	**Titan-6 Flyby Closest Approach Time**	**Altitude = 3669 km (2280 miles), speed = 6.0 km/s (13,400 mph); 43 deg phase at closest approach**
234T09:00:00	Aug 22 10:23	Mon Aug 22 03:23 AM	T6+00h07m	**Titan Wake Crossing**	
234T09:03:00	Aug 22 10:26	Mon Aug 22 03:26 AM	T6+00h10m	Slow radial scans	Temperature determination in tropopause and stratosphere.
234T10:08:00	Aug 22 11:31	Mon Aug 22 04:31 AM	T6+01h15m	Limb stares	Stratospheric studies of compounds - including H20
235T03:27:00	Aug 23 04:50	Mon Aug 22 09:50 PM	T6+18h34m	Deadtime	Used to accommodate changes in flyby time
235T03:42:00	Aug 23 05:05	Mon Aug 22 10:05 PM	T6+18h49m	Turn to Earth-Line	
235T04:42:00	Aug 23 06:05	Mon Aug 22 11:05 PM	T6+19h49m	Begin Playback of T6 Data	Madrid 70M
235T13:42:00	Aug 23 15:05	Tue Aug 23 08:05 AM	T6+01d05h	End Playback of T6 Data	
241T11:38:00	Aug 29 13:01	Mon Aug 29 06:01 AM	T6+07d03h	Saturn Apoapse	

1.5 FLYBY GEOMETRY

Tour Data Generator, Version 20050708, written by John Smith JPL. File Creation Date (YYMMDD.HHMMSS): 50816.120413

Event Name: T6_13TI, Targeted Titan, Outbound. 050720 SPK: Table Creation Date (YYMMDD) 050816

Event Name at Event Time Only	SCET Date (YYYY-DOYTHH:MM:SS.FF) UTC	SCET Date (MM/DD/YYYY HH:MM:SS) UTC	Hours wrt Event Epoch	Minutes wrt Event Epoch	S/C Range (km)	S/C Altitude wrt Tri-axial Ellipsoid (km)	S/C North Latitude (deg)	S/C West Longitude SMEQPM Date (deg)	S/C Inertial Velocity (km/s)	S/C Radial Inertial Velocity (km/s)	S/C Tangential Inertial Velocity (km/s)	Central Body Angular Diameter (mrad)	Phase = Sun-Central_Body-S/C Angle (deg)	Sun-S/C-Central_Body Angle (deg)	S/C Local True Solar Time wrt Central Body (hh:mm)	Sub-solar Latitude wrt Central Body (deg)	Sub-solar West Longitude wrt Central Body SMEQPM Date
	2005-233T08:53:36.81	21-Aug-05	-24	-1440	512,573.3	509,998.3	10.2	4.0	6.760	-6.748	0.395	10.0	56.6	123.4	15.13	-20.3	52.5
	2005-233T12:53:36.81	21-Aug-05	-20	-1200	418,933.1	416,358.1	10.5	8.3	6.295	-6.289	0.279	12.3	56.3	123.7	15.11	-20.3	56.3
	2005-233T14:53:36.81	21-Aug-05	-18	-1080	374,269.5	371,694.5	10.6	10.5	6.128	-6.123	0.236	13.8	56.2	123.8	15.10	-20.3	58.1
	2005-233T16:53:36.81	21-Aug-05	-16	-960	330,679.8	328,104.8	10.6	12.6	5.993	-5.990	0.204	15.6	55.9	124.0	15.09	-20.3	60.0
	2005-233T18:53:36.81	21-Aug-05	-14	-840	287,948.6	285,373.6	10.5	14.7	5.887	-5.884	0.186	17.9	55.7	124.3	15.08	-20.3	61.9
	2005-233T20:53:36.81	21-Aug-05	-12	-720	245,895.6	243,320.6	10.4	16.9	5.804	-5.801	0.183	20.9	55.4	124.6	15.07	-20.3	63.8
	2005-233T22:53:36.81	21-Aug-05	-10	-600	204,369.4	201,794.4	10.2	19.1	5.741	-5.737	0.198	25.2	55.1	124.9	15.06	-20.3	65.7
	2005-234T00:53:36.81	22-Aug-05	-8	-480	163,242.0	160,667.0	9.9	21.3	5.694	-5.690	0.235	31.5	54.6	125.4	15.05	-20.3	67.5
	2005-234T02:53:36.81	22-Aug-05	-6	-360	122,407.1	119,832.1	9.3	23.6	5.664	-5.655	0.305	42.1	53.9	126.1	15.03	-20.3	69.4
	2005-234T03:53:36.81	22-Aug-05	-5	-300	102,072.3	99,497.3	8.7	24.9	5.654	-5.642	0.363	50.5	53.3	126.7	15.01	-20.3	70.4
	2005-234T04:53:36.81	22-Aug-05	-4	-240	81,783.1	79,208.1	8.0	26.3	5.648	-5.630	0.451	63.0	52.5	127.5	14.59	-20.3	71.3
	2005-234T05:53:36.81	22-Aug-05	-3	-180	61,540.4	58,965.4	6.6	28.0	5.647	-5.615	0.597	83.7	51.1	128.9	14.56	-20.3	72.2
	2005-234T06:53:36.81	22-Aug-05	-2	-120	41,370.6	38,795.6	4.1	30.4	5.655	-5.585	0.886	124.6	48.5	131.5	14.50	-20.3	73.2
	2005-234T07:53:36.81	22-Aug-05	-1	-60	21,457.3	18,882.3	-3.4	35.5	5.687	-5.425	1.707	240.6	41.2	138.8	14.34	-20.3	74.1
	2005-234T08:23:36.81	22-Aug-05	-1	-30	12,044.0	9,469.0	-16.3	43.3	5.744	-4.874	3.040	430.9	29.9	150.1	14.04	-20.3	74.6
	2005-234T08:38:36.81	22-Aug-05	0	-15	8,099.8	5,524.8	-32.9	55.2	5.807	-3.645	4.520	647.1	21.5	158.5	13.18	-20.3	74.8
	2005-234T08:48:36.81	22-Aug-05	0	-5	6,476.7	3,901.7	-51.3	78.0	5.854	-1.525	5.652	817.8	31.1	148.9	11.47	-20.3	75.0
T6_13TI	**2005-234T08:53:36.81**	**22-Aug-05**	**0**	**0**	**6,243.7**	**3,668.7**	**-59.2**	**102.3**	**5.863**	**0.000**	**5.863**	**850.2**	**43.5**	**136.5**	**10.10**	**-20.3**	**75.0**
	2005-234T08:58:36.81	22-Aug-05	0	5	6,476.7	3,901.7	-60.8	134.1	5.854	1.525	5.652	817.8	57.4	122.6	08.04	-20.3	75.1
	2005-234T09:08:36.81	22-Aug-05	0	15	8,099.8	5,524.8	-49.8	174.1	5.807	3.646	4.520	647.0	80.1	99.9	05.24	-20.3	75.3
	2005-234T09:23:36.81	22-Aug-05	1	30	12,044.1	9,469.1	-35.1	-167.7	5.744	4.874	3.040	430.9	98.4	81.6	04.13	-20.3	75.5
	2005-234T09:53:36.81	22-Aug-05	1	60	21,457.8	18,882.8	-22.8	-157.9	5.687	5.425	1.706	240.6	112.0	68.0	03.35	-20.3	76.0
	2005-234T10:53:36.81	22-Aug-05	2	120	41,372.0	38,797.0	-15.4	-152.3	5.655	5.585	0.885	124.6	119.8	60.2	03.17	-20.3	76.9
	2005-234T11:53:36.81	22-Aug-05	3	180	61,541.1	58,966.1	-12.9	-149.9	5.646	5.615	0.595	83.7	122.5	57.5	03.11	-20.3	77.9
	2005-234T12:53:36.81	22-Aug-05	4	240	81,778.5	79,203.5	-11.5	-148.2	5.645	5.627	0.447	63.0	123.9	56.1	03.08	-20.3	78.8
	2005-234T13:53:36.81	22-Aug-05	5	300	102,053.6	99,478.6	-10.7	-146.8	5.648	5.636	0.356	50.5	124.7	55.3	03.06	-20.3	79.7
	2005-234T14:53:36.81	22-Aug-05	6	360	122,360.2	119,785.2	-10.2	-145.6	5.653	5.645	0.296	42.1	125.2	54.8	03.05	-20.3	80.7
	2005-234T16:53:36.81	22-Aug-05	8	480	163,069.6	160,494.6	-9.5	-143.5	5.668	5.664	0.218	31.6	125.8	54.2	03.04	-20.3	82.6
	2005-234T18:53:36.81	22-Aug-05	10	600	203,921.6	201,346.6	-9.1	-141.5	5.687	5.685	0.173	25.3	126.1	53.9	03.03	-20.3	84.4
	2005-234T20:53:36.81	22-Aug-05	12	720	244,934.8	242,359.8	-8.8	-139.5	5.710	5.708	0.149	21.0	126.3	53.7	03.03	-20.3	86.3
	2005-234T22:53:36.81	22-Aug-05	14	840	286,125.3	283,550.3	-8.6	-137.7	5.736	5.734	0.142	18.0	126.4	53.6	03.03	-20.3	88.2
	2005-235T00:53:36.81	23-Aug-05	16	960	327,505.7	324,930.7	-8.4	-135.9	5.763	5.761	0.152	15.7	126.4	53.6	03.03	-20.3	90.1
	2005-235T02:53:36.81	23-Aug-05	18	1080	369,085.2	366,510.2	-8.3	-134.2	5.792	5.789	0.176	14.0	126.4	53.6	03.04	-20.3	92.0
	2005-235T04:53:36.81	23-Aug-05	20	1200	410,870.1	408,295.1	-8.1	-132.4	5.822	5.818	0.208	12.5	126.3	53.7	03.05	-20.3	93.8
	2005-235T08:53:36.81	23-Aug-05	24	1440	495,067.8	492,492.8	-7.9	-129.1	5.883	5.876	0.292	10.4	126.1	53.9	03.06	-20.3	97.6

1.6 DATA PLAYBACK TIMELINE

For each science observation, the table below contains a time-ordered listing of the estimated data playback times. One-way light time at the time of the encounter is 1 hour and 23 minutes.

013TI (T6) Playback Timeline **Created Aug. 16, 2005**

Event or Observation	Observation Type (APGEN)	Observation Record Start Time (yyyy-dddThh:mm:ss) (SCET)	Record Start Time - Reference Epoch (ddThh:mm)	Start Playback (Ground UTC)		Start Playback (Pacific Time)	
				Best Estimate	Latest Possible	Best Estimate	Latest Possible
CDA_013DR_DRATESP03001_RIDER	CDA_524	2005-233T21:20:00	-00T11:33	23-Aug Tue 06:10 AM	Tue 06:10 AM	22-Aug Mon 11:10 PM	Mon 11:10 PM
CIRS_013IC_DSCALSHRT228_RIDER	CIRS_4000	2005-233T21:20:00	-00T11:33	23-Aug Tue 06:10 AM	Tue 06:10 AM	22-Aug Mon 11:10 PM	Mon 11:10 PM
MAG_013OT_SURVEY008_PRIME	MAG_1976	2005-233T21:20:00	-00T11:33	23-Aug Tue 06:10 AM	Tue 06:10 AM	22-Aug Mon 11:10 PM	Mon 11:10 PM
CIRS_013TI_FIRNADCMP003_PRIME	CIRS_4000	2005-233T22:05:37	-00T10:48	23-Aug Tue 06:13 AM	Tue 06:13 AM	22-Aug Mon 11:13 PM	Mon 11:13 PM
CIRS_013TI_FIRNADCMP003_SI	ISS_SUPPORT_IMAGING	2005-233T22:05:37	-00T10:48	23-Aug Tue 06:13 AM	Tue 06:13 AM	22-Aug Mon 11:13 PM	Mon 11:13 PM
ISS_013TI_FIRNADCMP003_CIRS	**ISS_Phot_1_by_1**	**2005-233T22:05:37**	**-00T10:48**	**23-Aug Tue 06:13 AM**	**Tue 06:13 AM**	**22-Aug Mon 11:13 PM**	**Mon 11:13 PM**
UVIS_013TI_FIRNADCMP003_CIRS	UVIS_5032	2005-233T22:05:37	-00T10:48	23-Aug Tue 06:13 AM	Tue 06:13 AM	22-Aug Mon 11:13 PM	Mon 11:13 PM
INMS_013TI_T6INBD002_ISS	**INMS_1498**	**2005-233T22:35:00**	**-00T10:18**	**23-Aug Tue 06:17 AM**	**Tue 06:18 AM**	**22-Aug Mon 11:17 PM**	**Mon 11:18 PM**
RPWS_013SA_OUTSURVEY005_PRIME	RPWS_30464	2005-233T22:35:00	-00T10:18	23-Aug Tue 06:17 AM	Tue 06:18 AM	22-Aug Mon 11:17 PM	Mon 11:18 PM
MIMI_013TI_TINTERACT001_ISS	**MIMI_8000**	**2005-233T22:35:01**	**-00T10:18**	**23-Aug Tue 06:17 AM**	**Tue 06:18 AM**	**22-Aug Mon 11:17 PM**	**Mon 11:18 PM**
VIMS_013TI_MIDIRTMAP001_CIRS	**VIMS_18432**	**2005-233T23:03:37**	**-00T09:50**	**23-Aug Tue 06:21 AM**	**Tue 06:23 AM**	**22-Aug Mon 11:21 PM**	**Mon 11:23 PM**
CIRS_013TI_MIRLMBMAP002_PRIME	CIRS_4000	2005-234T01:23:37	-00T07:30	23-Aug Tue 06:48 AM	Tue 07:00 AM	22-Aug Mon 11:48 PM	Tue 12:00 AM
CIRS_013TI_MIRLMBMAP002_SI	ISS_SUPPORT_IMAGING	2005-234T01:23:37	-00T07:30	23-Aug Tue 06:48 AM	Tue 07:00 AM	22-Aug Mon 11:48 PM	Tue 12:00 AM
ISS_013TI_MIRLMBMAP002_CIRS	**ISS_Phot_1_by_1**	**2005-234T01:23:37**	**-00T07:30**	**23-Aug Tue 06:48 AM**	**Tue 07:00 AM**	**22-Aug Mon 11:48 PM**	**Tue 12:00 AM**
UVIS_013TI_MIRLMBMAP002_CIRS	UVIS_5032	2005-234T01:23:37	-00T07:30	23-Aug Tue 06:48 AM	Tue 07:00 AM	22-Aug Mon 11:48 PM	Tue 12:00 AM
CIRS_013TI_FIRNADMAP002_PRIME	CIRS_4000	2005-234T03:53:37	-00T05:00	23-Aug Tue 07:20 AM	Tue 07:44 AM	23-Aug Tue 12:20 AM	Tue 12:44 AM
CIRS_013TI_FIRNADMAP002_SI	ISS_SUPPORT_IMAGING	2005-234T03:53:37	-00T05:00	23-Aug Tue 07:20 AM	Tue 07:44 AM	23-Aug Tue 12:20 AM	Tue 12:44 AM
ISS_013TI_FIRNADMAP002_CIRS	**ISS_Phot_1_by_1**	**2005-234T03:53:37**	**-00T05:00**	**23-Aug Tue 07:20 AM**	**Tue 07:44 AM**	**23-Aug Tue 12:20 AM**	**Tue 12:44 AM**
UVIS_013SA_FIRNADMAP002_CIRS	UVIS_5032	2005-234T03:53:37	-00T05:00	23-Aug Tue 07:20 AM	Tue 07:44 AM	23-Aug Tue 12:20 AM	Tue 12:44 AM
MAG_013TI_MAGTITAN001_PRIME	MAG_1976	2005-234T04:53:37	-00T04:00	23-Aug Tue 07:28 AM	Tue 07:57 AM	23-Aug Tue 12:28 AM	Tue 12:57 AM
CIRS_013TI_FIRLMBINT002_PRIME	CIRS_4000	2005-234T06:38:37	-00T02:15	23-Aug Tue 07:44 AM	Tue 08:21 AM	23-Aug Tue 12:44 AM	Tue 01:21 AM
CIRS_013TI_FIRLMBINT002_SI	ISS_SUPPORT_IMAGING	2005-234T06:38:37	-00T02:15	23-Aug Tue 07:44 AM	Tue 08:21 AM	23-Aug Tue 12:44 AM	Tue 01:21 AM
ISS_013TI_FIRLMBINT002_CIRS	**ISS_Phot_1_by_1**	**2005-234T06:38:37**	**-00T02:15**	**23-Aug Tue 07:44 AM**	**Tue 08:21 AM**	**23-Aug Tue 12:44 AM**	**Tue 01:21 AM**
CAPS_013TI_T6INBND001_ISS	CAPS_16000	2005-234T06:53:37	-00T02:00	23-Aug Tue 07:47 AM	Tue 08:25 AM	23-Aug Tue 12:47 AM	Tue 01:25 AM
MIMI_013TI_T6INBND001_ISS	**MIMI_8000**	**2005-234T06:53:37**	**-00T02:00**	**23-Aug Tue 07:47 AM**	**Tue 08:25 AM**	**23-Aug Tue 12:47 AM**	**Tue 01:25 AM**
RPWS_013TI_TIINTRMED001_PRIME	RPWS_30464	2005-234T06:53:37	-00T02:00	23-Aug Tue 07:47 AM	Tue 08:25 AM	23-Aug Tue 12:47 AM	Tue 01:25 AM
CIRS_013TI_FIRLMBAER002_PRIME	CIRS_4000	2005-234T07:38:37	-00T01:15	23-Aug Tue 08:03 AM	Tue 08:46 AM	23-Aug Tue 01:03 AM	Tue 01:46 AM
CIRS_013TI_FIRLMBAER002_SI	ISS_SUPPORT_IMAGING	2005-234T07:38:37	-00T01:15	23-Aug Tue 08:03 AM	Tue 08:46 AM	23-Aug Tue 01:03 AM	Tue 01:46 AM
ISS_013TI_FIRLMBAER002_CIRS	**ISS_Phot_1_by_1**	**2005-234T07:38:37**	**-00T01:15**	**23-Aug Tue 08:03 AM**	**Tue 08:46 AM**	**23-Aug Tue 01:03 AM**	**Tue 01:46 AM**
CAPS_013TI_T6CLOSE001_VIMS	CAPS_16000	2005-234T07:53:37	-00T01:00	23-Aug Tue 08:09 AM	Tue 08:53 AM	23-Aug Tue 01:09 AM	Tue 01:53 AM
INMS_013TI_T6CLOSE001_VIMS	**INMS_1498**	**2005-234T07:53:37**	**-00T01:00**	**23-Aug Tue 08:09 AM**	**Tue 08:53 AM**	**23-Aug Tue 01:09 AM**	**Tue 01:53 AM**
MIMI_013TI_T6CLOSE001_VIMS	**MIMI_8000**	**2005-234T07:53:37**	**-00T01:00**	**23-Aug Tue 08:09 AM**	**Tue 08:53 AM**	**23-Aug Tue 01:09 AM**	**Tue 01:53 AM**
CIRS_013TI_FIRLMBT002_PRIME	CIRS_4000	2005-234T08:08:37	-00T00:45	23-Aug Tue 08:16 AM	Tue 09:02 AM	23-Aug Tue 01:16 AM	Tue 02:02 AM
CIRS_013TI_FIRLMBT002_SI	ISS_SUPPORT_IMAGING	2005-234T08:08:37	-00T00:45	23-Aug Tue 08:16 AM	Tue 09:02 AM	23-Aug Tue 01:16 AM	Tue 02:02 AM
ISS_013TI_FIRLMBT002_CIRS	**ISS_Phot_1_by_1**	**2005-234T08:08:37**	**-00T00:45**	**23-Aug Tue 08:16 AM**	**Tue 09:02 AM**	**23-Aug Tue 01:16 AM**	**Tue 02:02 AM**
CIRS_013TI_HIRESMAP002_PRIME	CIRS_4000	2005-234T08:43:37	-00T00:10	23-Aug Tue 08:33 AM	Tue 09:22 AM	23-Aug Tue 01:33 AM	Tue 02:22 AM
CIRS_013TI_HIRESMAP002_SI	ISS_SUPPORT_IMAGING	2005-234T08:43:37	-00T00:10	23-Aug Tue 08:33 AM	Tue 09:22 AM	23-Aug Tue 01:33 AM	Tue 02:22 AM
ISS_013TI_HIRESMAP002_CIRS	**ISS_Phot_1_by_1**	**2005-234T08:43:37**	**-00T00:10**	**23-Aug Tue 08:33 AM**	**Tue 09:22 AM**	**23-Aug Tue 01:33 AM**	**Tue 02:22 AM**
CIRS_013TI_FIRLMBT003_PRIME	CIRS_4000	2005-234T09:03:37	00T00:09	23-Aug Tue 08:52 AM	Tue 09:45 AM	23-Aug Tue 01:52 AM	Tue 02:45 AM
CIRS_013TI_FIRLMBT003_SI	ISS_SUPPORT_IMAGING	2005-234T09:03:37	00T00:09	23-Aug Tue 08:52 AM	Tue 09:45 AM	23-Aug Tue 01:52 AM	Tue 02:45 AM
ISS_013TI_FIRLMBT003_CIRS	**ISS_Phot_1_by_1**	**2005-234T09:03:37**	**00T00:09**	**23-Aug Tue 08:52 AM**	**Tue 09:45 AM**	**23-Aug Tue 01:52 AM**	**Tue 02:45 AM**
1WAY_TO_2WAY_GAP_M70ARRNON235	**P/B GAP**	**~5 min. Playback Gap**	**n/a**	**23-Aug Tue 09:01 AM**	**Tue 09:01 AM**	**23-Aug Tue 02:01 AM**	**Tue 02:01 AM**
CIRS_013TI_FIRLMBAER003_PRIME	CIRS_4000	2005-234T09:38:37	00T00:44	23-Aug Tue 09:06 AM	Tue 10:02 AM	23-Aug Tue 02:06 AM	Tue 03:02 AM
CIRS_013TI_FIRLMBAER003_SI	ISS_SUPPORT_IMAGING	2005-234T09:38:37	00T00:44	23-Aug Tue 09:06 AM	Tue 10:02 AM	23-Aug Tue 02:06 AM	Tue 03:02 AM
ISS_013TI_FIRLMBAER003_CIRS	**ISS_Phot_1_by_1**	**2005-234T09:38:37**	**00T00:44**	**23-Aug Tue 09:06 AM**	**Tue 10:02 AM**	**23-Aug Tue 02:06 AM**	**Tue 03:02 AM**
CAPS_013TI_T6OUTBND001_RADAR	CAPS_16000	2005-234T09:53:37	00T00:59	23-Aug Tue 09:11 AM	Tue 10:09 AM	23-Aug Tue 02:11 AM	Tue 03:09 AM
INMS_013TI_T6OUTBD001_RADAR	**INMS_1498**	**2005-234T09:53:37**	**00T00:59**	**23-Aug Tue 09:11 AM**	**Tue 10:09 AM**	**23-Aug Tue 02:11 AM**	**Tue 03:09 AM**
MIMI_013TI_T6OUTBND001_RADAR	**MIMI_8000**	**2005-234T09:53:37**	**00T00:59**	**23-Aug Tue 09:11 AM**	**Tue 10:09 AM**	**23-Aug Tue 02:11 AM**	**Tue 03:09 AM**
CIRS_013TI_FIRLMBINT003_PRIME	CIRS_4000	2005-234T10:08:37	00T01:14	23-Aug Tue 09:15 AM	Tue 10:42 AM	23-Aug Tue 02:15 AM	Tue 03:42 AM
CIRS_013TI_FIRLMBINT003_SI	ISS_SUPPORT_IMAGING	2005-234T10:08:37	00T01:14	23-Aug Tue 09:15 AM	Tue 10:42 AM	23-Aug Tue 02:15 AM	Tue 03:42 AM
ISS_013TI_FIRLMBINT003_CIRS	**ISS_Phot_1_by_1**	**2005-234T10:08:37**	**00T01:14**	**23-Aug Tue 09:15 AM**	**Tue 10:42 AM**	**23-Aug Tue 02:15 AM**	**Tue 03:42 AM**
CAPS_013SA_SURVEY004_RIDER	CAPS_16000	2005-234T10:53:37	00T01:59	23-Aug Tue 09:37 AM	Tue 11:08 AM	23-Aug Tue 02:37 AM	Tue 04:08 AM
MIMI_013TI_TINTERACT002_CIRS	**MIMI_8000**	**2005-234T10:53:37**	**00T01:59**	**23-Aug Tue 09:37 AM**	**Tue 11:08 AM**	**23-Aug Tue 02:37 AM**	**Tue 04:08 AM**
CIRS_013TI_FIRNADMAP003_PRIME	CIRS_4000	2005-234T11:08:37	00T02:14	23-Aug Tue 09:42 AM	Tue 11:15 AM	23-Aug Tue 02:42 AM	Tue 04:15 AM
CIRS_013TI_FIRNADMAP003_SI	ISS_SUPPORT_IMAGING	2005-234T11:08:37	00T02:14	23-Aug Tue 09:42 AM	Tue 11:15 AM	23-Aug Tue 02:42 AM	Tue 04:15 AM
ISS_013TI_FIRNADMAP003_CIRS	**ISS_Phot_1_by_1**	**2005-234T11:08:37**	**00T02:14**	**23-Aug Tue 09:42 AM**	**Tue 11:15 AM**	**23-Aug Tue 02:42 AM**	**Tue 04:15 AM**
RPWS_013SA_OUTSURVEY003_PRIME	RPWS_30464	2005-234T11:12:32	00T02:18	23-Aug Tue 09:42 AM	Tue 11:16 AM	23-Aug Tue 02:42 AM	Tue 04:16 AM
MAG_013OT_SURVEY010_PRIME	MAG_1976	2005-234T12:53:37	00T03:59	23-Aug Tue 09:57 AM	Tue 11:39 AM	23-Aug Tue 02:57 AM	Tue 04:39 AM
CIRS_013TI_MIRLMBMAP003_PRIME	CIRS_4000	2005-234T13:53:37	00T04:59	23-Aug Tue 10:06 AM	Tue 11:52 AM	23-Aug Tue 03:06 AM	Tue 04:52 AM
CIRS_013TI_MIRLMBMAP003_SI	ISS_SUPPORT_IMAGING	2005-234T13:53:37	00T04:59	23-Aug Tue 10:06 AM	Tue 11:52 AM	23-Aug Tue 03:06 AM	Tue 04:52 AM
ISS_013TI_MIRLMBMAP003_CIRS	**ISS_Phot_1_by_1**	**2005-234T13:53:37**	**00T04:59**	**23-Aug Tue 10:06 AM**	**Tue 11:52 AM**	**23-Aug Tue 03:06 AM**	**Tue 04:52 AM**
CIRS_013TI_FIRNADCMP004_PRIME	CIRS_4000	2005-234T16:23:37	00T07:29	23-Aug Tue 10:55 AM	Tue 12:36 PM	23-Aug Tue 03:55 AM	Tue 05:36 AM
CIRS_013TI_FIRNADCMP004_SI	ISS_SUPPORT_IMAGING	2005-234T16:23:37	00T07:29	23-Aug Tue 10:55 AM	Tue 12:36 PM	23-Aug Tue 03:55 AM	Tue 05:36 AM
ISS_013TI_FIRNADCMP004_CIRS	**ISS_Phot_1_by_1**	**2005-234T16:23:37**	**00T07:29**	**23-Aug Tue 10:55 AM**	**Tue 12:36 PM**	**23-Aug Tue 03:55 AM**	**Tue 05:36 AM**
UVIS_013TI_FIRNADCMP004_CIRS	UVIS_5032	2005-234T16:23:37	00T07:29	23-Aug Tue 10:55 AM	Tue 12:36 PM	23-Aug Tue 03:55 AM	Tue 05:36 AM
CIRS_013TI_MIDIRTMAP007_PRIME	CIRS_4000	2005-234T20:53:37	00T11:59	23-Aug Tue 11:34 AM	Tue 01:35 PM	23-Aug Tue 04:34 AM	Tue 06:35 AM
CIRS_013TI_MIDIRTMAP007_SI	ISS_SUPPORT_IMAGING	2005-234T20:53:37	00T11:59	23-Aug Tue 11:34 AM	Tue 01:35 PM	23-Aug Tue 04:34 AM	Tue 06:35 AM
INMS_013SA_SURVEY004_RIDER	**INMS_1498**	**2005-234T20:53:37**	**00T11:59**	**23-Aug Tue 11:34 AM**	**Tue 01:35 PM**	**23-Aug Tue 04:34 AM**	**Tue 06:35 AM**
ISS_013TI_MIDIRTMAP007_CIRS	**ISS_Phot_1_by_1**	**2005-234T20:53:37**	**00T11:59**	**23-Aug Tue 11:34 AM**	**Tue 01:35 PM**	**23-Aug Tue 04:34 AM**	**Tue 06:35 AM**
UVIS_013TI_MIDIRTMAP007_CIRS	UVIS_5032	2005-234T20:53:37	00T11:59	23-Aug Tue 11:34 AM	Tue 01:35 PM	23-Aug Tue 04:34 AM	Tue 06:35 AM
UVIS_013SW_IPHSURVEY018_RIDER	UVIS_5032	2005-235T04:42:00	00T19:48	23-Aug Tue 10:13 AM	Tue 10:13 AM	23-Aug Tue 03:13 AM	Tue 03:13 AM
RSS_013SA_KADOWN003_RSS	RSS_Activity	2005-235T05:22:00	00T20:28	23-Aug Tue 10:15 AM	Tue 10:15 AM	23-Aug Tue 03:15 AM	Tue 03:15 AM
CIRS_013IC_DSCAL1229_RIDER	CIRS_4000	2005-235T06:00:00	00T21:06	23-Aug Tue 10:17 AM	Tue 10:17 AM	23-Aug Tue 03:17 AM	Tue 03:17 AM
INMS_013SA_SURVEY005_RIDER	**INMS_1498**	**2005-235T13:23:05**	**01T04:29**	**23-Aug Tue 02:50 PM**	**Sun 07:08 PM**	**23-Aug Tue 07:50 AM**	**Sun 12:08 PM**
CAPS_013SA_SURVEY008_RIDER	CAPS_16000	2005-235T13:41:00	01T04:47	24-Aug Wed 01:35 PM	Sun 07:09 PM	24-Aug Wed 06:35 AM	Sun 12:09 PM